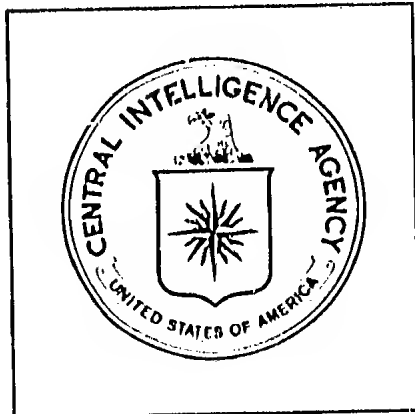


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Soviets May Have Revolutionary Hydraulic Coal Pump: The Ministry of Chemical and Petroleum Machine Building of the USSR has successfully developed and produced a two-stage hydraulic pump capable of pumping coal from a depth of one thousand feet under the ground and through a coal transport pipeline, without "fining" or crushing it. By doing so, the pump eliminates the major problem of de-watering the "fine" or crushed coal. This two stage pump can handle coal chunks up to 4 inches in diameter. [redacted]

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Comment: This new hydraulic coal pump appears to have great potential to revolutionize the coal mining extraction industry, not only in the USSR but also in the US and other countries. It can handle nonfriable coals, fairly large chunks of coal, and it has the ability to separate process water for recycling and pollution prevention. The pump also appears suitable for use on slurry pipelines.

Presently, the major problem with this pump is its short life span. The design and manufacture of a good, reliable piece of equipment is a continuing Soviet engineering weakness. Other technologically advanced countries should be able to develop the appropriate engineering solutions to overcome this problem once design details of this coal pump become available.

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Turkey Announces Future Nuclear Plans: In an interview on 26 February, the Turkish Defense Minister Sancar is quoted as saying: "We are working on nuclear energy. There are plans to manufacture atom bombs and nuclear reactors."

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Comment: Turkey has signed the Non-Proliferation Treaty but has not ratified the treaty as yet. In view of Sancar's statement, Turkey is unlikely to complete ratification of the Treaty.

Turkey has no capability to produce fissionable material for nuclear weapons and is unlikely to develop such a capability for a number of years.

The Turkish Atomic Energy Commission has plans for the eventual use of nuclear power. At present, the plans call for the construction of a 600-MWe nuclear power plant by 1983. Turkey will be dependent upon foreign assistance in the construction of this reactor.

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25X1 Soviet Military Research on Dolphin Communication Is Continuing:
A recent article describes research on the communications signals of Black Sea bottlenose dolphins (*Tursiops truncatus Ponticus*). The paper concentrates on the classification of dolphin communication signals, analysis of the fine structure of such signals, and determination of the quantity of information transmitted. The experiment involved pairs of dolphins in isolated tanks whose acoustic signals were relayed electronically, thus allowing close monitoring of transmitted signal structure. The importance of high quality instrumentation in such experimentation is emphasized. Based on their experiments, the authors calculate an upper bound on the bit rate of dolphin communication that is close to the estimated bounds for the information acquisition rate of man. [REDACTED]

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Comment: This is one of the first open literature references to dolphin communication research conducted in the classified Soviet marine mammal program. The principal author, Aleksander Mikhailovich Reznik, is believed to be the senior Soviet scientist associated with military bioacoustic research. He has been, and probably still is, the deputy director of the Bionics Laboratory, Scientific Research Institute of Hydro-instruments (NII Gidropribor), Kiev. [REDACTED]

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The results reported may be as much as 7 years old; this delay in publication may reflect Soviet sensitivity in this area. [REDACTED]

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25X1 Little is presently known regarding the classified efforts in marine bioacoustics carried out by the Soviets. Other Soviet publications support the effort to develop improved sonars and underwater communications equipment for the Soviet Navy. In addition, they support the development of operational marine mammal programs which exploit the animal's echolocation capabilities, such as minesweeping. [REDACTED]

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Human Element Ignored in Developing Automated Management System for the Soviet Economy: V. A. Trapeznikov, First Deputy of the State Committee for Science and Technology, indicated in a recent lecture that insufficient attention had been devoted to the human element in developing the new economy-wide Automated System of Management (ASU). He stated that there is a lack of trained personnel who understand systems requirements and the sophisticated electronic equipment used in collecting and evaluating data. Operator personnel do not use the system for the purposes for which it was designed; they tend to mistrust system output, and man-machine subordination problems have not been solved.

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Comment: The lack of user acceptance evident in the ASU system indicates a lack of well trained Soviet systems analysts. Competent system analysts normally should contact each potential user and solicit their opinions on various systems design parameters to insure that the automated systems meet their operational requirements and that system output is displayed

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in meaningful and unusable formats. This apparently has not been an integral part of ASU system design.

The ASU system is a large and complex system. Continued lack of solution for the reported man-machine interface problems will likely cause the system to fall short of designed operating goals in the immediate future and drastically impair its utility as a useful tool for management of the Soviet economy.

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